

**ABSTRACT**

A method is provided for electrical mapping of a pulmonary vein of a heart, including introducing into the heart a catheter having a curved section and a base section, the base section having a distal end attached to a proximal end of the curved section. At a location on the curved section, a first position signal is generated having fewer than six dimensions of position and orientation information. At a vicinity of the distal end of the base section, a second position signal is generated having six dimensions of position and orientation information. The method also includes measuring, at one or more locations on the curved section, an electrical property of the pulmonary vein.